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Treatment Outcome of Infections Associated with Internal Fixation Devices: Results from a 5-year Retrospective Study (1999–2003)

A. Trampuz[1]*, A. Gilomen[1], U. Fluckiger[1], R. Frei[1], W. Zimmerli[2], A. Widmer[1]. [1]*University Hospital, Basel, Switzerland,* [2]*Kantonsspital, Liestal, Switzerland*

Background: Infections associated with orthopedic devices are difficult to treat and cause significant morbidity. Data about treatment outcome are limited.
Objective: To evaluate characteristics and treatment outcome of infections associated with internal fixation devices over a 5-year period.
Methods: We reviewed patient records from all patients admitted to the University Hospital Basel from 1/1999 through 12/2003 because of an internal fixation device-associated infection, defined as growth of the same microorganism in >1 tissue culture, visible purulence, sinus tract or acute inflammation on tissue histopathology. Patients, their relatives and/or physicians were contacted to determine the outcome.
Results: We reviewed 132 consecutive patients with a device-associated infection, involving lower extremity (n = 54), foot (n = 31) upper extremity (n = 21), spine (n = 11) and other locations (n = 15). The median age was 74 y (range, 16–96 y); 53% were men. Median hospital stay was 25 d (range, 1–175 d). Debridement with retention was performed in 70 patients (54%), device removal in 57 patients (44%) and 3 patients (2%) had no surgery. In 37 patients (28%) more than one pathogen was isolated; most common pathogens were S. *aureus* (35%), coagulase-negative staphylococci (27%), streptococci (6%), enterococci (9%), Gram-negative rods (17%) and anaerobes (6%). At admission, fever was present in 19%, joint pain in 51%, swelling in 42%, erythema in 51%, warmth 14%, sinus tract in 34%. Patients were followed for a median of 2.4 y (range, 34 d to 6.3 y), 9 patients died (2 of them related to the device-associated infection) and 18 (14%) were lost to follow-up. Of the remaining 105 patients, 92 (88%) had a successful outcome after >1 year: 86% with debridement and retention and 91% with device removal.
Conclusions: A subset of patients with infected fixation devices can be successfully treated by debridement and antimicrobial therapy.

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Treatment Outcome of Prosthetic Joint Infections: A 10-Year Cohort Study (1994–2003)

A. Trampuz[1]*, C. Cattelan[1], U. Fluckiger[1], R. Frei[1], W. Zimmerli[2], A. Widmer[1]. [1]*University Hospital, Basel, Switzerland,* [2]*Kantonsspital, Liestal, Switzerland*

Background: Prosthetic joint infections (PJI) lead to significant long-term morbidity with high cost of care. Since 1988, patients with PJI have been treated at our hospital according to a standardized algorithm (NEJM 2004; 351: 1645). We evaluated characteristics of PJI over a 10-year period.
Objective: To evaluate characteristics and treatment outcome of PJI over a 10-year period.
Methods: All patients hospitalized at our institution from 1/1994 to 12/2003 with PJI (defined as growth of the same microorganism in $\geqslant$2 tissue or synovial fluid cultures, visible purulence, sinus tract or acute inflammation on tissue histopathology) were included. Patients, their relatives and/or treating physicians were contacted to determine the outcome.
Results: 129 patients with PJI were identified; for 119 (92%) data were available, involving hip (78), knee (22), ankle (11) and shoulder prostheses. The median age was 73 y (range, 33–94 y); 52% were men. Median hospital stay was 27 d (range, 1–125 d); 12 patients (10%) needed intensive care. Most common reason for primary arthroplasty was trauma (42%) and osteoarthritis (30%). Debridement with retention was performed in 80 (67%), one-stage exchange in 15 (13%), two-stage exchange in 15 (13%) and prosthesis removal in 6 (5%); 3 patients (2%) had no surgery. Isolated pathogens were S. *aureus* (37%), coagulase-negative staphylococci (34%), streptococci (7%), enterococci (3%), Gram-negative rods (11%) and anaerobes (8%). In 23 episodes (19%) more than one pathogen was found. Patients were followed for a median of 3.1 years, 11 patients (9%) died (all unrelated to PJI) and 15 (13%) were lost to follow-up. Of the remaining 93 patients, 84 (90%) had a successful outcome after $\geqslant$2 years: 91% with debridement and retention, 89% with one-stage exchange, 80% two-stage exchange and 83% with prosthesis removal.
Conclusions: Using a standardized algorithm for treatment of PJI had an overall success rate of 90% after $\geqslant$2 years. Cure rate of PJI with debridement and retention in appropriately selected patients was 91%.